A Review of NIOSH Research Activities in the Oil and Gas Extraction Industry

Ryan Hill, MPH National Institute for Occupational Safety and Health

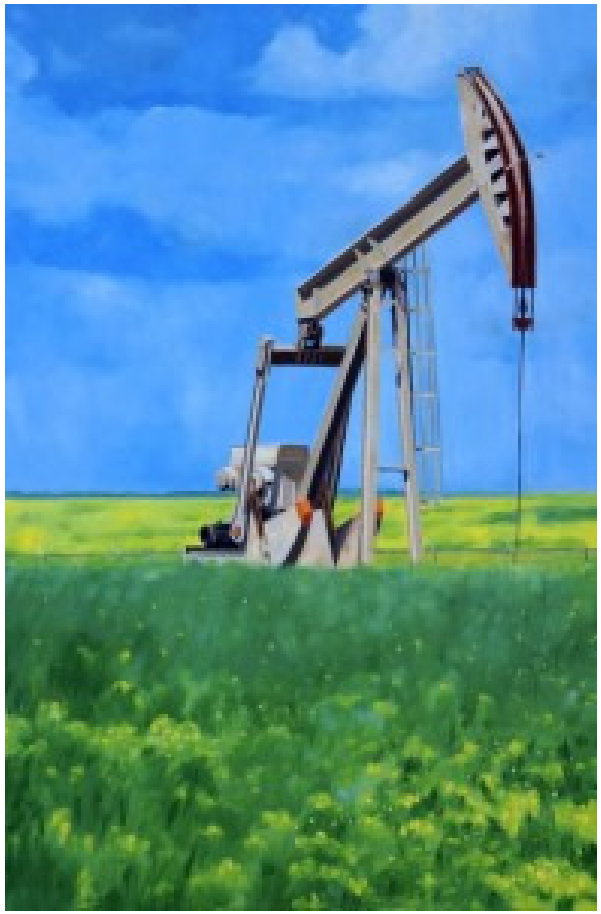
National Institute for Occupational Safety & Health (NIOSH)

- Part of the Centers for Disease Control & Prevention (CDC)
- Research-focused
- Generate new knowledge
- Work with partners – research 2 practice

CDC Workplace Safety and Health NIOSH

Session Overview

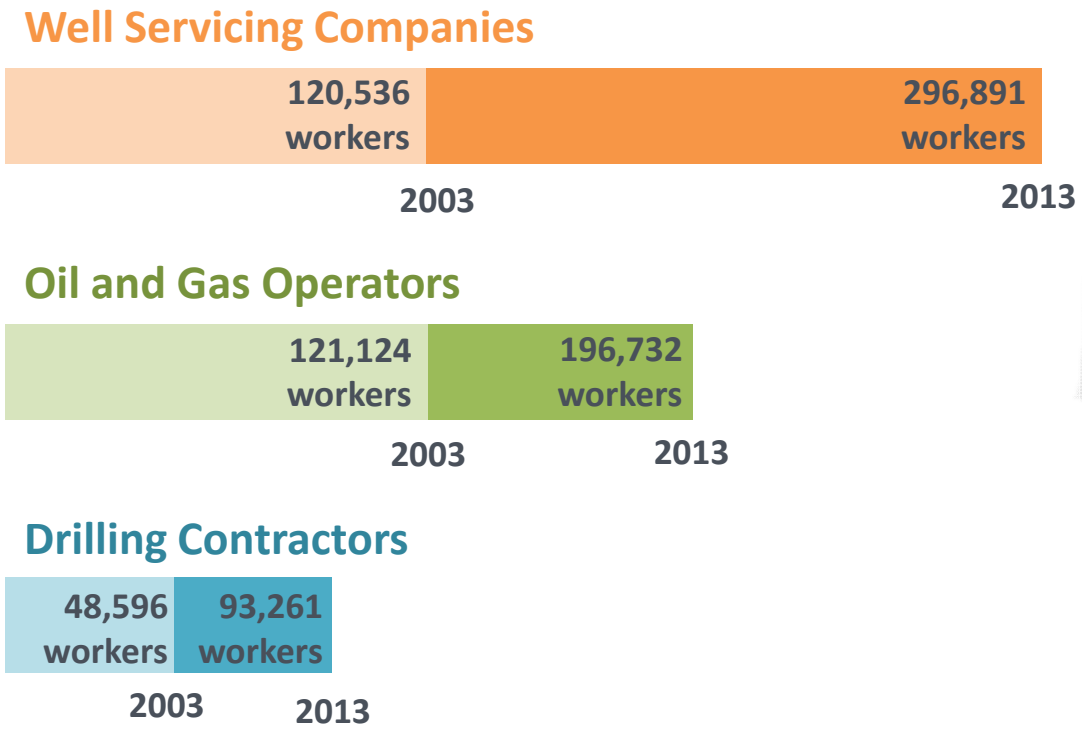
1. Industry overview
2. Data-driven research
3. Partnerships
4. WV activities



Oil on canvas, by Joe Burns.

Recent Industry Growth

The oil and gas workforce doubled and the number of drilling rigs increased 71% from 2003-2013.



245% Increase

62% Increase

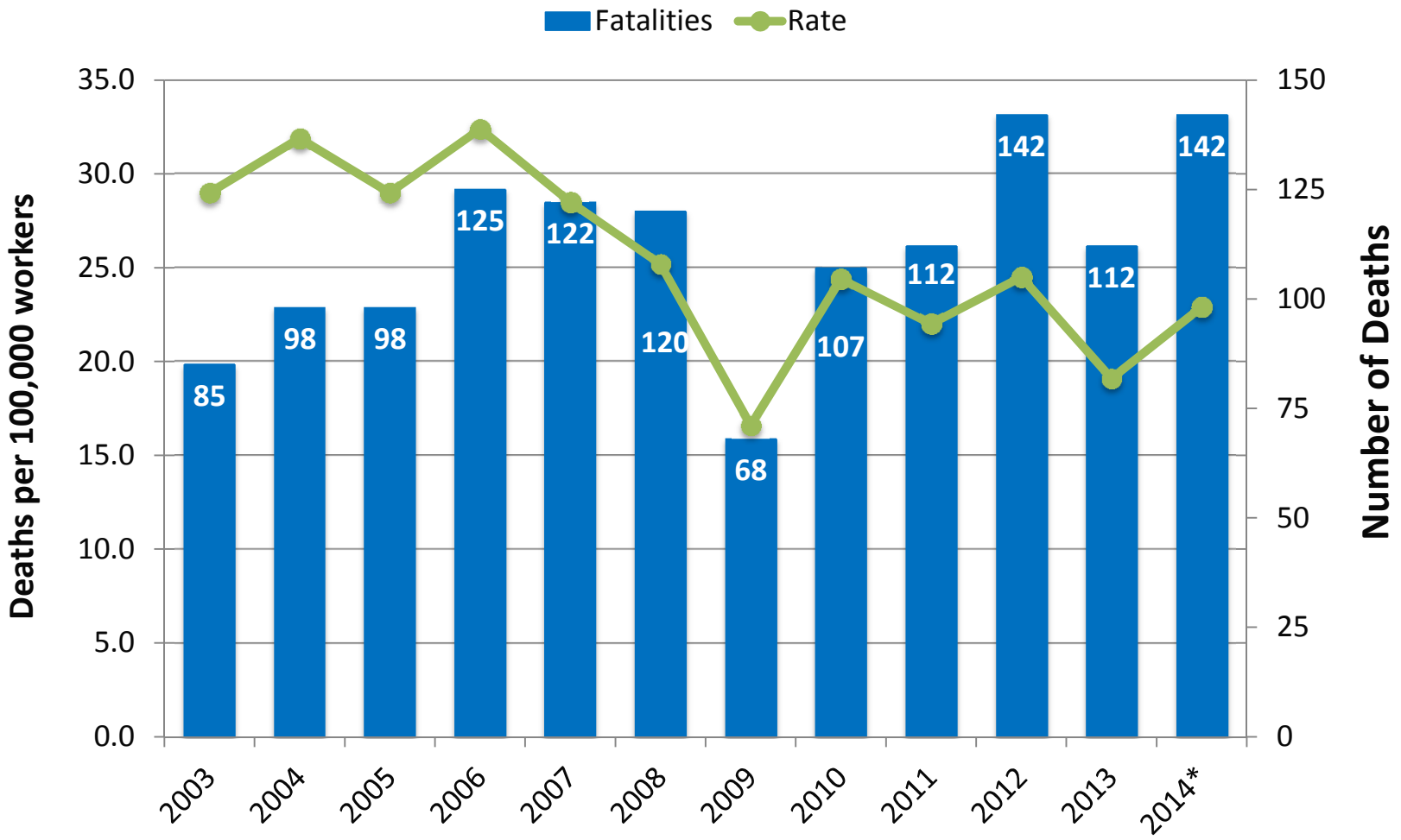
92% Increase

CDC Workplace Safety and Health NIOSH

Note: Worker Estimates from BLS Quarterly Census of Employment and Wages (2013).

Number and Rate of Fatal Work Injuries

U.S. Oil & Gas Extraction Industry, 2003-2014

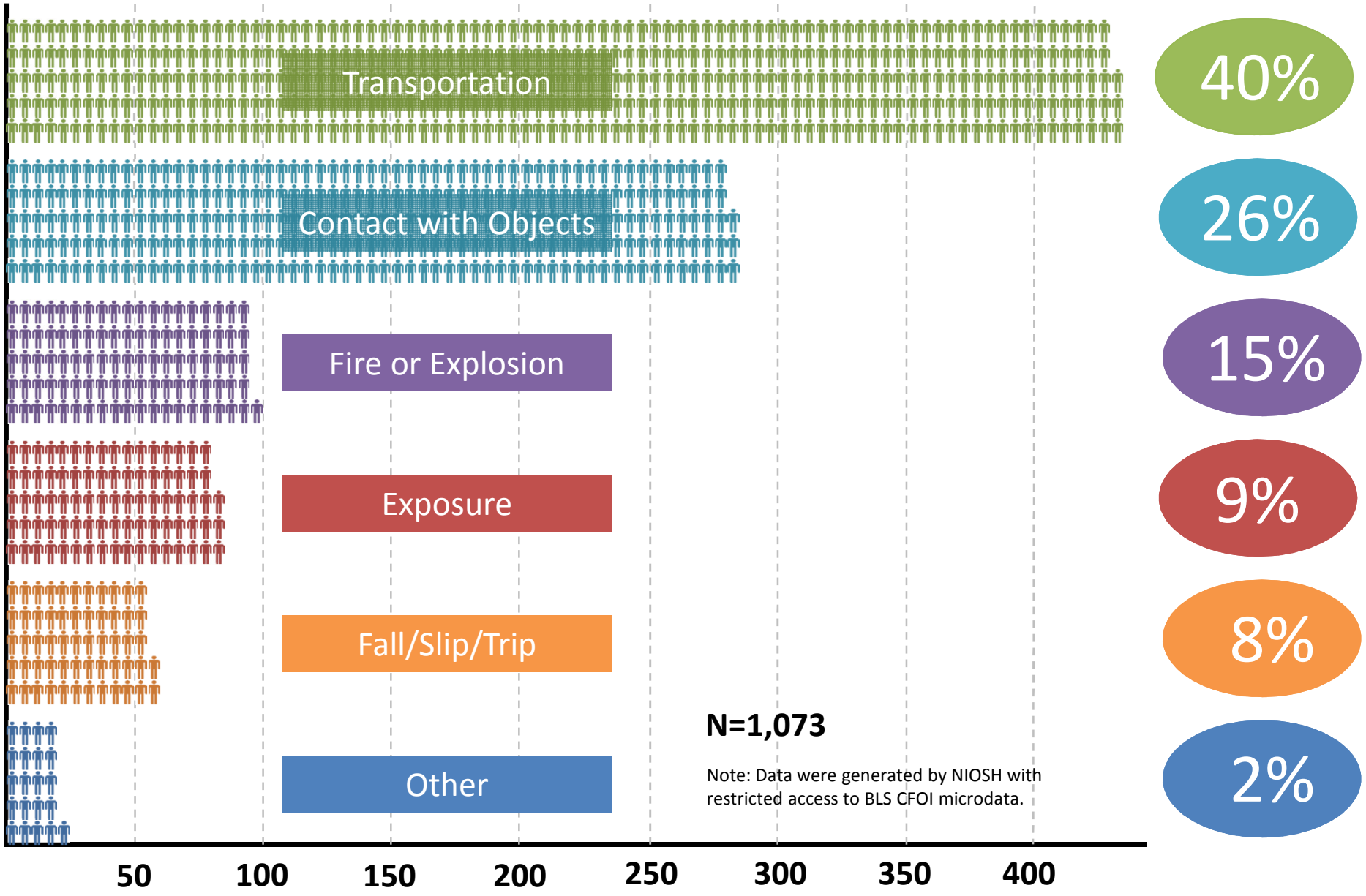


Note: Fatality counts from BLS Census of Fatal Occupational Injuries. Worker Estimates from BLS Quarterly Census of Employment and Wages (2014). Rate per 100,000 workers per year. Includes NAICS 211, 213111, 213112. *Data for 2014 are preliminary.

N=1,331

Most Frequent Fatal Events

U.S. Oil & Gas Extraction Industry, 2003-2012



Select NIOSH Research Projects & Publications

Select Research Projects

- Seed Money to Support Learning
- Field Effort to Assess Chemical Exposures to Oil & Gas Workers
- Contact Injury Prevention
- Motor Vehicle Best Practices
- PPE Use in O&G: Seat Belts & Fall Protection
- Preventing Fires & Explosions
- Chemical Exposures to Oil &Gas Workers
- Rig Move Safety
- Offshore Oil & Gas Industry
- Preventing Falls

2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015

Select Outputs

Publications

DVDs

SPE Article: Working Hard to Work Safely

Fact Sheet: Chemical Exposures to O&G Workers

SPE Article: Mortality Statistics for the US Upstream Industry

Move It! Rig Move Safety for Truckers

Occupational Exposures to Respirable Crystalline Silica during Hydraulic Fracturing

SPE Article: Fatalities by Company Type and Size

Move It! Rig Move Safety for Roughnecks

Well Servicing: Fatal Injuries in the Upstream O&G Industry

MMWR: Fatalities Among O&G Workers

ASSE Professional Safety: Effective Training, A Case Study from the O&G Industry

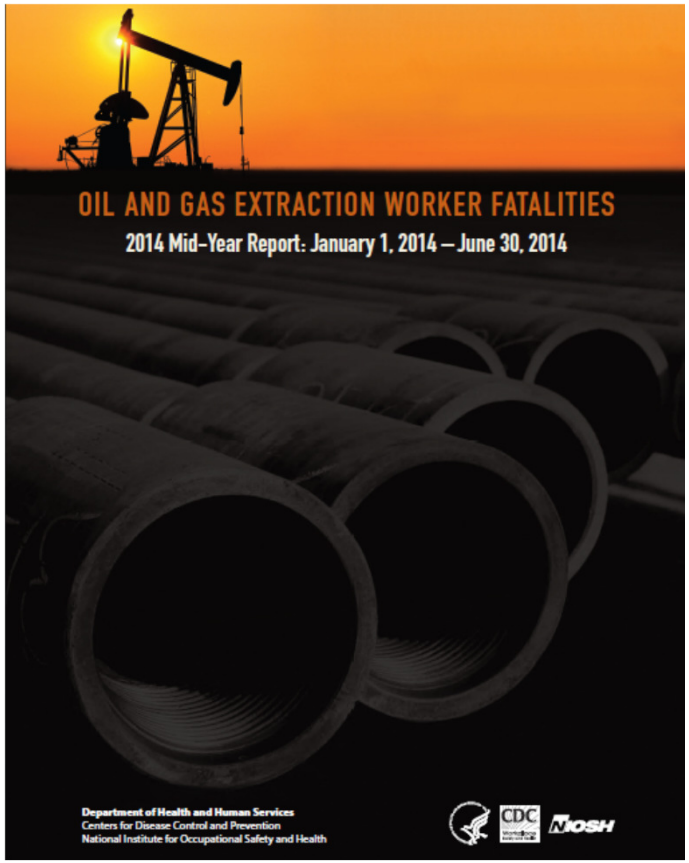
SPE Article: Review of the Literature: MV Safety Practices

Eval of Potential Chemical Exposure Risks during Flowback Operations

Take Pride in Your Job: Seat Belts & Fall Protection

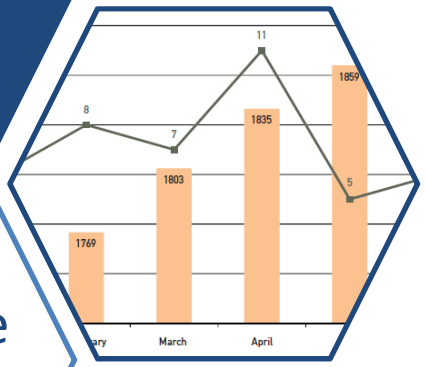
First NIOSH Publication

2014 Mid-Year Fatality Report

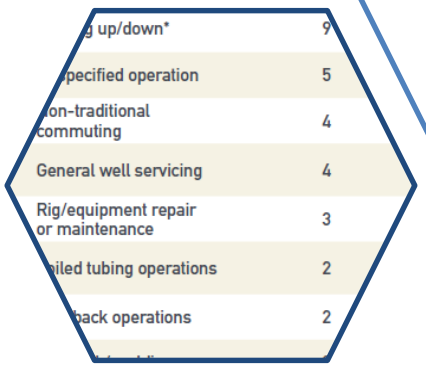


Maps

Fatalities by Operation



Descriptive Statistics



Narratives

CDC Workplace Safety and Health NIOSH

www.cdc.gov/niosh/docs/2015-239/pdfs/2015-239.pdf

Partnership Program: NORA Oil & Gas Council

NIOSH Respirable Crystalline Silica (RCS) Field Study, 2010-2011

- 11 sites, 5 states
- Winter, spring, summer
- Various elevations
- More than half exceeded OSHA limit

CDC Workplace Safety and Health NIOSH

Point Sources of Respirable Crystalline Silica Release


1.


2.


3.


4.


5.


6.


7.


8.

CDC Workplace Safety and Health

NIOSH

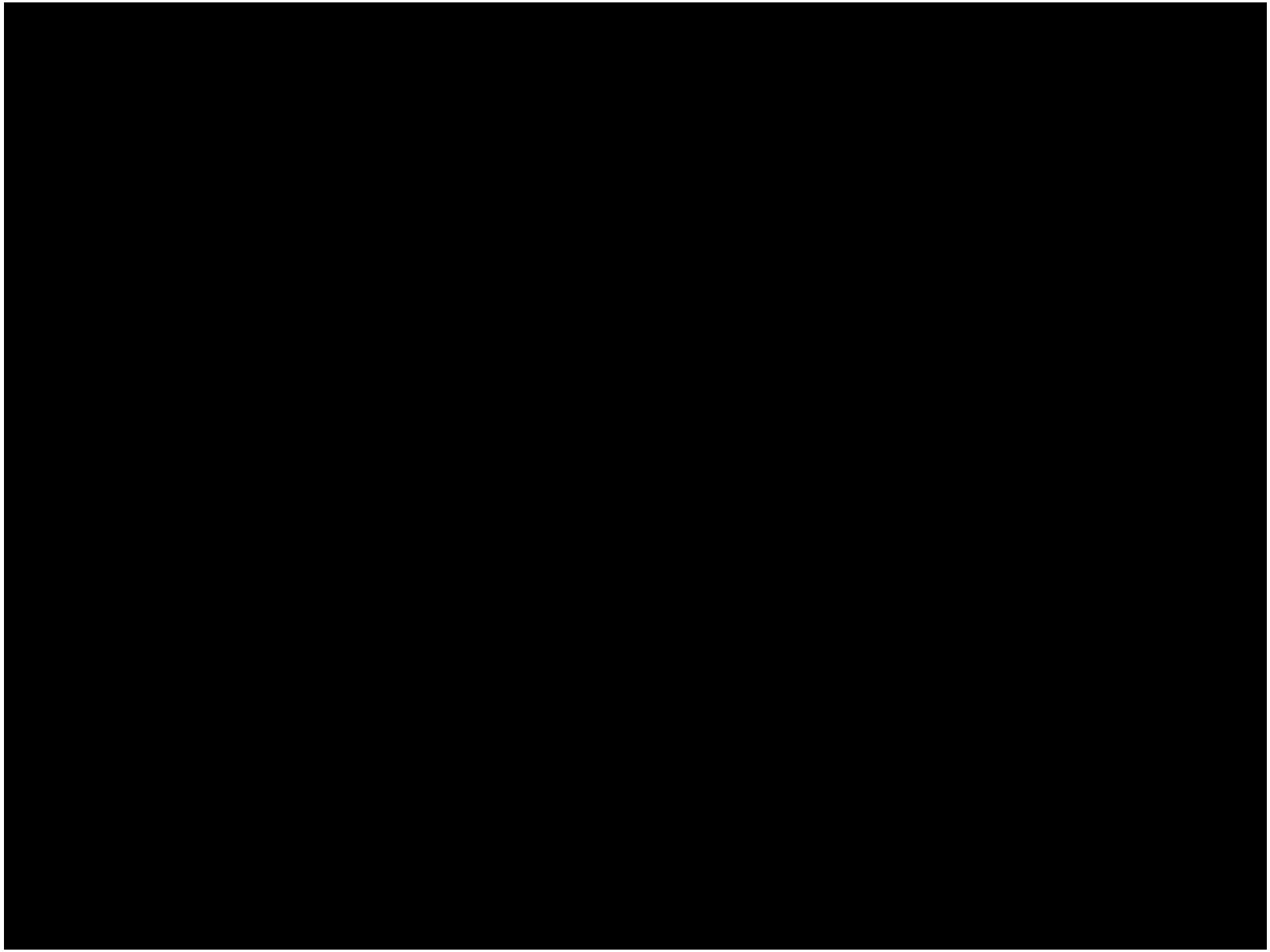
Fatalities Associated with Manual Gauging, Thieving, Fluid Handling

Nine (9) worker deaths where inhalation of petroleum hydrocarbons was likely factor.

- All occurred at production tanks.
- All employees were working alone or not being observed.
- 5 fatalities occurred during thieving (collecting a sample) by fluid haulers.
- 4 fatalities occurred while manual tank gauging.

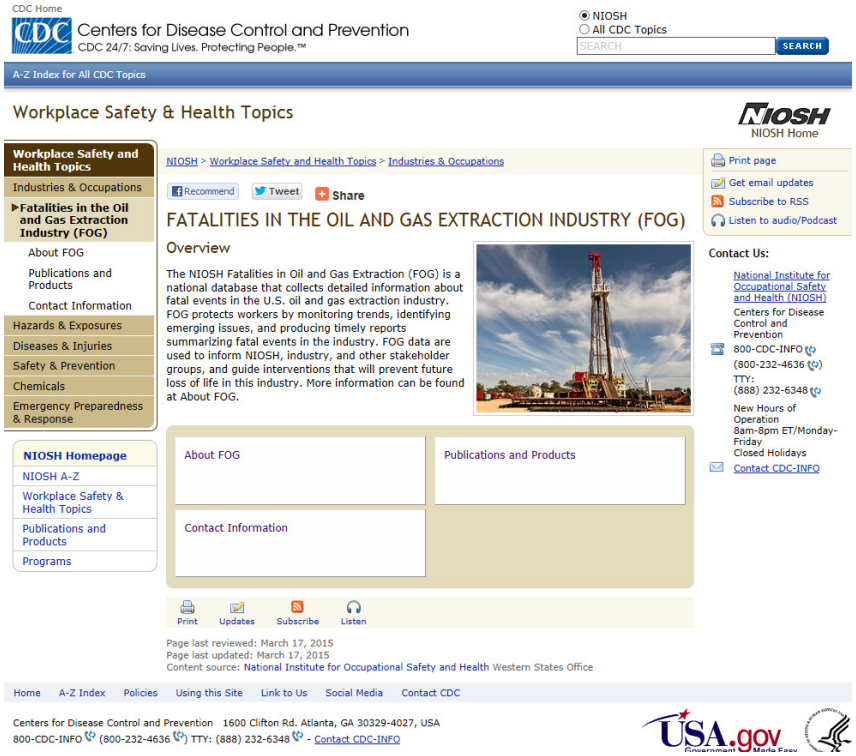
CDC Workplace Safety and Health NIOSH

FLIR Video



NIOSH FOG Report and Science Blog

Suspected Inhalation Fatalities Involving Workers during Manual Tank Gauging, Sampling, and Fluid Transfer Operations



www.cdc.gov/niosh/topics/fog/publications.html

CDC Workplace Safety and Health NIOSH

Hazard Alert

NIOSH Oil and Gas Research Activities, WV

2015 Exposure Assessment Field Research

CDC Workplace Safety and Health

NIOSH

NIOSH Oil and Gas Research Activities, WV

2015 Exposure Assessment Field Research

- July 2015: Jane Lew, Hancock, Brooke, and Ohio Counties
- Production operations legacy oil wells with seven "Lease Operators"
- Turn-in wet gas well
- NIOSH sampled:
  - Alcohols (propargyl and methanol)
  - Glutaraldehyde
  - Low molecular weight hydrocarbons
  - Noise
- Methods: personal and area samples, direct reading instruments, biological monitoring

CDC Workplace Safety and Health NIOSH

NIOSH Oil and Gas Research Activities, WV

- Ongoing field studies
- Partnerships
  - Appalachian STEPS Network
  - Appalachian Shale Transportation Safety Network
- NIOSH FACE Program
  - Investigation of a July 2013 fatality to oilfield worker in WV

Contact Info

Ryan Hill

gii9@cdc.gov

304-285-6329

David Caruso

ake3@cdc.gov

412.386.6473